(AI) calculated for each extract, suggests that these extracts will be useful in pharmacological preparations as in vivo anti-HIV agents. The pharmacological preparations may contain the pharmacologically active ingredients alone or in admixture with an appropriate excipient or carrier, and may be administered to the HIV infected host by enteral, such as oral or rectal, and parenteral, such as subcutaneous, intramuscular, intraperitoneal, or intravenous route. The pharmacological agent may also be administered in combination with a supplemental antiviral agent, an antibody or a combination thereof. In addition, the pharmacological preparations according to the invention may be, for example, in dosage unit form, such as tablets, capsules, suppositories or ampoules.

It is another object of the invention to use any of the plant extracts or combination of the plant extracts, a biological metabolite, a derivative thereof or a combination of the above, in a pharmacological preparation for the treatment of opportunistic viral infections and bacterial infections in AIDS and other immunosuppressive states.

It is a further object of the invention to use the plant extracts, their active components or combinations of their components, a biological metabolite, a derivative thereof, or a combination of the above, in a pharmacological preparation for the treatment of viral and bacterial infections in immunocompetent patients.

It is still a further object of this invention to use the plant extracts, their active components or combinations of their components, a biological metabolite, a derivative thereof, or combination of the above, in a pharmacological preparation for differentiating between poliomyelitis virus types I, II, and III.

FIGURE LEGEND

Fig 1. Concentration dependent antiviral effects of plant extracts GHX-2L (O-O-O) and GHX-2R (Δ-Δ-Δ) against HCMV strain

AD169 in HEL cells. All extracts were added 2 h post virus infection.

Fig 2. Effect of time of initiation of treatment on anti-HSV-2 strain A activities of plant extracts. 40 min (o-o-o), 1 h (Δ-Δ-Δ), 2 h (•-•-•). A. GHX-2L, B. GHX-2R, and C. GHX-6L.

Fig 3. Toxicity of plant extracts in Vero cells determined by the tetrazolium-based colorimetric method. A. GHX-2L, B. GHX-20L, C. GHX-4R, D. GHX-6L, E. GHX-7L, and F. GHX-26F.

Fig 4. Effects of multiplicity of infection (MOI) on anti-HIV-1 strain GH3 activities of plant extracts and ddAzThd in M8166 cells. 1. 1424 MOI (o-o-o), 0.2856 MOI (Δ-Δ-Δ), 0.0714 MOI (•-•-•), 0.0357 MOI (▲-▲-▲). A. GHX-2L, B. GHX-6L, and C. ddAzThd.

Fig 5. Effects of plant extract GHX-2L on HIV chronically infected Molt4 clone 8 cell growth and virus production. A. Molt 4 cell growth, B. Molt 4/HIV cell growth, and C. Virus production from Molt 4/HIV cells.

Fig 6. Effects of plant extract GHX-6L on HIV chronically infected Molt4 clone 8 cell growth and virus production. A. Molt 4 cell growth, B. Molt 4/HIV cell growth, and C. Virus production from Molt 4/HIV cells.

Fig 7. Effects of plant extract GHX-26F on HIV chronically infected Molt4 clone 8 cell growth and virus production. A. Molt 4 cell growth, B. Molt 4/HIV cell growth, and C. Virus production from Molt 4/HIV cells.

Fig 8. Effects of plant extract GHX-27L on HIV chronically infected Molt4 clone 8 cell growth and virus production. A. Molt 4 cell growth, B. Molt 4/HIV cell growth, and C. Virus production from Molt 4/HIV cells.

Fig 9. In vitro toxicity of plant extracts GHX-2L (o-o-o), GHX-2R

(△-△-△), GHX-6L (●-●-●), and GHX-7L (▲-▲-▲) in M8166 cells determined by the tetrazolium-based colorimetric method.

Fig 10. In vitro toxicity of plant extracts GHX-2L (○-○-○), GHX-2R (△-△-△), GHX-6L (●-●-●), and GHX-7L (▲-▲-▲) in Molt 4 clone 8 cells determined by the tetrazolium-based colorimetric method.

Fig 11. Effects of plant extracts on PBMCs of HIV negative healthy person. A. GHX-2L, B. GHX-6L, C. GHX-7L, D. ddCyd, and E. ddIno.

Fig 12. Effects of plant extracts on PBMCs of AIDS patient 1. A. GHX-2L, B. GHX-6L, C. GHX-7L, D. ddCyd, and E. ddIno.

Fig 13. Effects of plant extracts on PBMCs of AIDS patient 2. A. GHX-2L, B. GHX-6L, C. ddCyd.

Fig 14. Effects of plant extracts on PBMCs of AIDS patient 3. A. GHX-2L, B. GHX-6L, C. GHX-7L, D. ddCyd, and E. ddIno.

Fig 15. Effects of plant extracts on PBMCs of AIDS patient 4. A. GHX-2L, B. GHX-6L, C. ddCyd, and D. ddIno.

This disclosure describes the effects of aqueous and methanol extracts on various viruses and bacteria. The aqueous extracts were prepared by boiling cut leaves (L), seeds (S), fruits (F), stems (ST), barks (B), or roots (R) in distilled water for about 10 mins. After centrifugation, the supernatants from these extracts were freeze-dried. To obtain the methanol extracts, decreasing concentrations (90%, 75%, 50%, 25%, 0% of methanol in water) were used for stepwise extraction of the freeze-dried aqueous extracts. Briefly, the highest concentration of methanol was used for several extractions until the color of the extract was nearly white. The procedure was repeated on the precipitate with the next highest methanol concentration and so on. Extracts of the same methanol concentration were then combined. The